## POSTER SESSION II

## ALLOGENEIC TRANSPLANTS

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### Factors Influencing Pulmonary Toxicity in the Setting of Total Body Irradiation-Based Myeloablative Conditioning in Children Undergoing Allogeneic Hematopoietic Stem Cell Transplantation

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**Purpose:** To evaluate factors associated with increased risk of pulmonary toxicity in pediatric patients after myeloablative conditioning using total body irradiation (TBI) followed by allogeneic hematopoietic stem cell transplantation (HSCT).

**Methods and materials:** The records of 129 consecutive pediatric patients (range, 1-21 years) who underwent TBI-based myeloablative conditioning for hematologic malignancies at our institution between January 2003 and May 2014 were reviewed. Although total TBI dose ranged from 10.5 to 14Gy, lung doses were reduced to 10Gy with partial transmission blocks. The TBI dose rate ranged from 5.57cGy/min to 20.85cGy/min.

**Results:** Pulmonary toxicity developed in 70.5% of patients, which proved to be fatal in 38.5% of those patients. Patients with any type of infection at any point during the follow-up period were more likely to develop pulmonary toxicity (p=0.009), and patients with bacterial infection during the follow-up period had the highest incidence of pulmonary toxicity (p=0.038). The presence of any grade of acute graft-versus-host-disease (GVHD) was associated with an increased incidence of pulmonary toxicity (p=0.034), which developed in 94.4% of patients with grade III-IV GVHD (p=0.001). TBI dose rate was significantly related to the development of pulmonary toxicity (p=0.0495). Pulmonary toxicity was 3.51 times more likely to develop in patients receiving a TBI dose rate greater than 15cGy/min (p=0.017). Overall survival was significantly shorter in patients who developed pulmonary toxicity (p=0.0053).

**Conclusions:** A high incidence of pulmonary toxicity was noted in this large series of homogeneously treated pediatric patients undergoing TBI for allogeneic HSCT. The presence of high grade acute GVHD and infection were the most significant factors contributing to the development of pulmonary toxicity. TBI dose rate should be aimed to be kept below 15cGy/min to decrease the risk of pulmonary injury.

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### Encouraging Outcomes of Haploidentical Hematopoietic Stem Cell Transplantation—Single Centre Experience from a Resource Poor Country

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High cost of matched unrelated donor stem cells limits its use in resource poor countries. Haploidentical donor is readily available for most of patients and at much lower cost, so can be feasible for poor patients. Here, we are reporting the outcome of 19 patients (16 male, 3 female), median age 37 years(15-63 yrs), who underwent Haplo HSCT using peripheral blood stem cells(n=16) and marrow (n=3) during October 2011 to September 2014 at Rajiv Gandhi Cancer Institute & Research Centre (India) using non-myeloablative (NMA) and reduced intensity conditioning regimen (RIC) for hematological disorders (AA=2,ALL=4,AML=5,NHL=1,HL=2, MM=1,CML=5) with post-transplant cyclophosphamide for GvHD prophylaxis. Fourteen patients were in remission at the time of transplant. Seven patients received RIC with BuFluCy(n=5) and BuFlu(n=2), 12 patients received NMA conditioning with FluCyATG(n=3) and FluCyTBI(n=9). Median CD34 cell dose was 5 X10$^6$cells/kg. Fifteen patients (79%) were engrafted, with a median time to neutrophil engraftment of 15 days (range, 9-22) and platelet engraftment of 14 days (range, 10-46). Nine patients had documented bacterial infection in first 100 days whereas none had documented fungal infection. Primary and secondary CMV reactivation occurred in 7 (36.8%) and 2 (10.5%) patients. The estimated day 100 and 1 year overall survival (OS) was 84.2±0.84% & 52.1±0.127 % respectively. The estimated 1 year event free survival (EFS) & non-relapse mortality (NRM) was 48.4±0.123% & 26.3%. Cumulative incidence of aGVHD (II-IV) and (III-IV) was 26.3% & 5.2% whereas cumulative incidence of chronic GVHD at 1 year & 2 year was 15.8% & 10.5% respectively. Graft rejection was seen in 6 patients (31.5%, 5 primary and 1 secondary). These results suggest that this approach is safe & effective, with rapid multilineage engraftment, low rates of both aGVHD & cGVHD and low NRM.

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### Plasma IL-7 and IL-15 Levels Vary Greatly after Low-Intensity Conditioning and May be Associated with Clinical Outcome in Recipients of High-Dose Sirolimus GVHD Prophylaxis

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In previous studies using a preparative regimen of fludarabine (Flu) plus high-dose cyclophosphamide (Cy; total dose, 4800 mg/m$^2$) and GVHD prophylaxis of cyclosporine plus methotrexate, it was determined that transplant recipients had quite variable plasma levels of the T cell